

# PATENT COOPERATION TREATY

TRANSLATION

From the  
INTERNATIONAL SEARCHING AUTHORITY

## PCT

WRITTEN OPINION OF THE  
INTERNATIONAL SEARCHING AUTHORITY

(PCT Rule 43bis.1)

To:

Date of mailing  
(day/month/year)

Applicant's or agent's file reference

**ITR04002**

**FOR FURTHER ACTION**

See paragraph 2 below

International application No.

**PCT/JP2005/000171**

International filing date (day/month/year)

**11.01.2005**

Priority date (day/month/year)

**08.01.2004**

International Patent Classification (IPC) or both national classification and IPC

Applicant

**ITO, Kohzo**

1. This opinion contains indications relating to the following items:

- ☒ Box No. I Basis of the opinion
- ☐ Box No. II Priority
- ☐ Box No. III Non-establishment of opinion with regard to novelty, inventive step and industrial applicability
- ☐ Box No. IV Lack of unity of invention
- ☒ Box No. V Reasoned statement under Rule 43bis.1(a)(i) with regard to novelty, inventive step or industrial applicability; citations and explanations supporting such statement
- ☐ Box No. VI Certain documents cited
- ☐ Box No. VII Certain defects in the international application
- ☒ Box No. VIII Certain observations on the international application

2. **FURTHER ACTION**

If a demand for international preliminary examination is made, this opinion will be considered to be a written opinion of the International Preliminary Examining Authority ("IPEA") except that this does not apply where the applicant chooses an Authority other than this one to be the IPEA and the chosen IPEA has notified the International Bureau under Rule 66.1bis(b) that written opinions of this International Searching Authority will not be so considered.

If this opinion is, as provided above, considered to be a written opinion of the IPEA, the applicant is invited to submit to the IPEA a written reply together, where appropriate, with amendments, before the expiration of 3 months from the date of mailing of Form PCT/ISA/220 or before the expiration of 22 months from the priority date, whichever expires later.

For further options, see Form PCT/ISA/220.

3. For further details, see notes to Form PCT/ISA/220.

Name and mailing address of the ISA/JP

Authorized officer

Facsimile No.

Telephone No.

WRITTEN OPINION OF THE  
INTERNATIONAL SEARCHING AUTHORITY

International application No.

PCT/JP2005/000171

Box No. I Basis of this opinion

1. With regard to the language, this opinion has been established on the basis of the international application in the language in which it was filed, unless otherwise indicated under this item.

☐ This opinion has been established on the basis of a translation from the original language into the following language  
\_\_\_\_\_, which is the language of a translation furnished for the purposes of international search (under Rule 12.3 and 23.1(b)).

2. With regard to any nucleotide and/or amino acid sequence disclosed in the international application and necessary to the claimed invention, this opinion has been established on the basis of:

a. type of material

☐ a sequence listing

☐ table(s) related to the sequence listing

b. format of material

☐ in written format

☐ in computer readable form

c. time of filing/furnishing

☐ contained in the international application as filed.

☐ filed together with the international application in computer readable form.

☐ furnished subsequently to this Authority for the purposes of search.

3. ☐ In addition, in the case that more than one version or copy of a sequence listing and/or table(s) relating thereto has been filed or furnished, the required statements that the information in the subsequent or additional copies is identical to that in the application as filed or does not go beyond the application as filed, as appropriate, were furnished.

4. Additional comments:

**WRITTEN OPINION OF THE  
INTERNATIONAL SEARCHING AUTHORITY**

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PCT/JP2005/000171

Box No. V	Reasoned statement under Rule 43bis.1(a)(i) with regard to novelty, inventive step or industrial applicability; citations and explanations supporting such statement		
<b>1. Statement</b>			
Novelty (N)	Claims	2-11	YES
	Claims	1, 12-29	NO
Inventive step (IS)	Claims	2-11	YES
	Claims	1, 12-29	NO
Industrial applicability (IA)	Claims	1-29	YES
	Claims		NO
<b>2. Citations and explanations:</b>			
<p>- The inventions of claims 1 and 12-22 do not appear to possess novelty or to involve an inventive step.</p> <p>Document 1: WO 2002/002159 A1 (Japan Tissue Engineering Co Lt), 10 January 2002, claims, page 8, lines 2-8, page 11, line 12 to page 15, line 25, Fig. 2</p> <p>Document 2: Takahiro ICHI et al., Polyrotaxane o kihon kokkaku to shita 3-jigen soshikитай no chousei to sono tokusei kaiseki, Japan Society of Mechanical Engineers, Dai 12-kai Bioengineering Koenkai - Shinseiki ni okeru bioengineering no yakuwari o kangaeru - Koen Ronbunshu, 05 January 2000, pp. 217-218</p> <p>Document 3: WO 2001/083566 A1 (Center Advanced Science &amp; Technology, Incubation Center), 08 November 2001, claims, page 19, lines 16-21</p> <p>Documents 1 and 2 describes a cross-linked polyrotaxane obtained by chemically bonding two or more polyrotaxane molecules through cyclodextrins, wherein part of the hydroxyl group of the cyclodextrin molecules is substituted with N,N'-carboxyl-diimidazole, a cross-linked polyrotaxane is obtained by cross-linking the N,N'-carboxyl-diimidazole substitute group with polyethylene glycol bisamine, etc.</p> <p>Here, in a case in which the N,N'-carboxyl-diimidazole substitute group is not cross-linked with the polyethylene glycol bisamine and remains, part of the hydroxyl group of the cyclodextrin molecules is substituted with a N,N'-carboxyl-diimidazole group, or in other words, a non-ion group.</p> <p>Document 3 describes a cross-linked polyrotaxane obtained by chemically bonding two or more polyrotaxane molecules through cyclodextrins, wherein it is preferable to have a thiol group, or in other words, a non-ion group, as the reactive group on the outer side of the cyclodextrin molecules.</p> <p>Accordingly, there is no difference between the inventions of claims 1 and 12-22 and the inventions described in document 1-3.</p> <p>- The inventions of claims 23-29 do not appear to possess novelty or to involve an inventive step.</p> <p>Documents 1 and 2 describe a material constituted from a cross-linked polyrotaxane gel, further having water and being in an equilibrium swelling state, etc.</p> <p>Here, the equilibrium swelling state is a state in which the gel maintains a specific shape, and therefore this examination finds that the cross-linked polyrotaxane gel of documents 1 and 2 can stand on its own.</p>			

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INTERNATIONAL SEARCHING AUTHORITY

International application No.

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Box No. VIII Certain observations on the international application

The following observations on the clarity of the claims, description, and drawings or on the question whether the claims are fully supported by the description, are made:

The permeability of the material is specified in claims 25 and 26, but it is unclear what "permeability" is referring to.

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Supplemental Box

In case the space in any of the preceding boxes is not sufficient.

Continuation of: Box V

- The inventions of claims 2-11 do not appear to possess novelty or to involve an inventive step.

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|-------------------------------------|--------------|--|
| <input checked="" type="checkbox"/> | Box No. I    | Basis of the opinion   |
| <input type="checkbox"/>            | Box No. II   | Priority   |
| <input type="checkbox"/>            | Box No. III  | Non-establishment of opinion with regard to novelty, inventive step and industrial applicability   |
| <input type="checkbox"/>            | Box No. IV   | Lack of unity of invention   |
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Box No. V Reasoned statement under Rule 43bis.1(a)(i) with regard to novelty, inventive step or industrial applicability; citations and explanations supporting such statement

1. Statement

Novelty (N)	Claims	2-11	YES
	Claims	1, 12-29	NO
Inventive step (IS)	Claims	2-11	YES
	Claims	1, 12-29	NO
Industrial applicability (IA)	Claims	1-29	YES
	Claims		NO

2. Citations and explanations:

- The inventions of claims 1 and 12-22 do not appear to possess novelty or to involve an inventive step.

Document 1: WO 2002/002159 A1 (Japan Tissue Engineering Co Ltd), 10 January 2002, claims, page 8, lines 2-8, page 11, line 12 to page 15, line 25, Fig. 2

Document 2: Takahiro ICHI et al., Polyrotaxane o kihon kokkaku to shita 3-jigen soshikitai no chousei to sono tokusei kaiseki, Japan Society of Mechanical Engineers, Dai 12-kai Bioengineering Koenkai - Shinseiki ni okeru bioengineering no yakuwari o kangaeru - Koen Ronbunshu, 05 January 2000, pp. 217-218

Document 3: WO 2001/083566 A1 (Center Advanced Science & Technology, Incubation Center), 08 November 2001, claims, page 19, lines 16-21

Documents 1 and 2 describes a cross-linked polyrotaxane obtained by chemically bonding two or more polyrotaxane molecules through cyclodextrins, wherein part of the hydroxyl group of the cyclodextrin molecules is substituted with N,N'-carboxyl-diimidazole, a cross-linked polyrotaxane is obtained by cross-linking the N,N'-carboxyl-diimidazole substitute group with polyethylene glycol bisamine, etc.

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Document 3 describes a cross-linked polyrotaxane obtained by chemically bonding two or more polyrotaxane molecules through cyclodextrins, wherein it is preferable to have a thiol group, or in other words, a non-ion group, as the reactive group on the outer side of the cyclodextrin molecules.

Accordingly, there is no difference between the inventions of claims 1 and 12-22 and the inventions described in document 1-3.

- The inventions of claims 23-29 do not appear to possess novelty or to involve an inventive step.

Documents 1 and 2 describe a material constituted from a cross-linked polyrotaxane gel, further having water and being in an equilibrium swelling state, etc.

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